

Amendments to the Claims

This listing of claims will replace all prior listings of claims in the application.

Listing of Claims

1. (Original). An apparatus for sorting a plurality of substantially flat items for delivery to a plurality of recipients, the apparatus comprising:

means for receiving items to be sorted, a destination recipient address being associated with each item;

a plurality of sorting bins into which items to be sorted are to be deposited;

guide means, coupled to the means for receiving items and the sorting bins, for directing received items to the plurality of sorting bins;

means for inputting data relating to the plurality of items, the data including at least each destination recipient address;

means for inputting data defining a pre-determined sequence of candidate recipient addresses to which the items will ultimately be delivered;

a control unit for receiving the data relating to the plurality of the items and the data defining the pre-determined sequence of recipient addresses, for allocating one or more sorting bins to recipient addresses in the sequence in dependence on the data relating to the items, the number of sorting bins that are allocated to a recipient address being sufficient to accommodate all items that are associated with that destination recipient address, and for controlling the guide means to direct the items to the one or more sorting bins so allocated,

and wherein the control unit only operates the guide means to direct the received items to the respective sorting

bins once it has received the data for the entire plurality of items to be sorted and can allocate sufficient sorting bins appropriately.

2. (Original) An apparatus according to claim 1 wherein the control unit allocates the sorting bins such that only those candidate recipient addresses to which items are to be delivered are allocated one or more sorting bins.

3. (Original) An apparatus according to claim 1 wherein the control unit allocates the sorting bins such that candidate recipient addresses that are adjacent in the sequence are allocated adjacent sorting bins.

4. (Original) An apparatus according to claim 1 in which the data relating to the plurality of items includes data describing the dimensions of each item, and wherein the control unit uses this data to allocate one or more sorting bins to a recipient address such that all items of mail to be delivered to that recipient address can be deposited in the one or more sorting bins so allocated.

5. (Original) An apparatus according to claim 1 wherein the means for inputting data relating to the items has a terminal at a site remote from the means for receiving the items to be sorted, the guide means and the sorting bins;

the terminal being connected by a network to the control means, such that if the items to be sorted are initially received at the remote site, the data relating to the items can be collected and transmitted to the control unit before the items themselves are delivered to the means for receiving items for sorting into the sorting bins.

6. (Original) An apparatus according to claim 1 in

which the items to be sorted are items of mail, and in which the data defining the sequence in which the items to be sorted comprises the order in which a mail deliverer completes his route.

7. (Original) An apparatus for sorting according to claim 1 in which each sorting bin further comprises indication means controlled by the control unit,

wherein entering data pertaining to an item to be sorted into the means for inputting data causes the control unit to activate the indication means for the allocated sorting bin allowing an operator to manually place the item into the sorting bin.

8. (Original) A method of sorting a plurality of substantially flat items for delivery to a plurality of recipients, the method comprising:

providing a plurality of sorting bins into which items to be sorted are to be deposited;

receiving items to be sorted, a destination recipient address being associated with each item;

receiving data relating to the plurality of items, the data including at least each destination recipient address;

receiving data defining a pre-determined sequence of candidate recipient addresses to which the items will ultimately be delivered;

allocating, once all of the data relating to the plurality of items to be sorted has been received, one or more sorting bins to recipient addresses in the sequence in dependence on the data relating to the plurality of the items, the number of sorting bins that are allocated to a recipient address being sufficient to accommodate all items that are associated with that destination recipient address;

directing, once the sorting bins have been allocated to

the recipient addresses, the items to the one or more sorting bins allocated to the recipient address corresponding to the destination recipient address of the item.

9. (Original) A method according to claim 8 wherein only those candidate recipient addresses to which items are to be delivered are allocated one or more sorting bins.

10. (Currently Amended) A method according to claim 8 wherein sorting bins are allocated such that candidate recipient addresses that are adjacent in the sequence are allocated adjacent sorting bins.

11. (Original) A method according to claim 8 comprising: receiving the items to be sorted at a site remote to the sorting bins;

collecting data relating to the items at the remote site, the data including at least recipient address information; and

transmitting the data from the remote site to the site at which the sorting bins are located, before the items to be sorted are delivered to that site so that the data can be used to allocate the sorting bins in advance.

12. (Original) A method according to claim 8 in which the data relating to the plurality of items includes data describing the dimensions of each item, and wherein one or more sorting bins are allocated to a recipient address such that all items of mail to be delivered to that recipient address can be deposited in the one or more sorting bins so allocated.

13. (Original) A method according to claim 8 in which the items to be sorted are items of mail, and in which the data defining the sequence in which the items to be sorted

comprises the order in which a mail deliverer completes his route.

14. (Cancelled).

15. (Currently Amended) The apparatus of claim ~~14~~ 41 wherein the sorting bins are arranged above the first and second input means and said second guide means is a substantially vertical conveyor belt.

16. (Currently Amended) The apparatus of claim ~~14~~ 41 wherein the second input means is a conveyor belt capable of receiving items of mail that are at least C4 or equivalent in size.

17. (Currently Amended) The apparatus of claim ~~14~~ 41 wherein the second input means is a singulator capable of singulating items of mail that are at least C4 or equivalent in size.

18. (Cancelled).

19. (Currently Amended) The apparatus of claim ~~18~~ 42 in which a region of the curved guide plate which comes into contact with a sorted item as the item enters the ~~collection~~ sorting bin is provided with means to slow the item's descent into the ~~collection~~ sorting bin.

20. (Original) The apparatus of claim 19 in which the means to slow an item's descent is a braking material disposed on the surface of the curved guide plate.

21. (Currently Amended) The apparatus of claim ~~18~~ 42 in which the ~~collection~~ sorting bins are formed by the space

between two adjacent curved guide plates.

22. (Currently Amended) The apparatus of claim 21 further comprising an output conveyor for carrying sorted items away from the ~~collection~~sorting bins, the output conveyor having an upper surface;

wherein the output conveyor is positioned below the curved guide plates of the ~~collection~~sorting bins such that an item of mail directed into the ~~collection~~sorting bin comes to rest between the curved guide plates and against the upper surface of the output conveyor.

23. (Currently Amended) The apparatus of claim 22 comprising means for raising the curved guide plates of all of the ~~collectionsorting~~ bins such that the items of mail in the ~~collectionsorting~~ bins are output onto the upper surface of the output conveyor in the order into which they had been sorted.

24. (Currently Amended) ~~Apparatus for deflecting an item of mail into a collection bin comprising:~~

~~— a plurality of collection bins, each having an opening which may receive an item of mail, arranged in one or more rows;~~

~~— a diverter blade connected to each collection bin, and having a closed position in which it covers the opening to the collection bin to prevent an item of mail from entering;~~

~~means for supporting items of mail flowing across the top of the diverter blades of each collection bin in a row; and~~

~~— a control unit for controlling a diverter blade to direct an item of mail from the flow into a pre-designated collection bin;~~

The apparatus of Claim 42, wherein the diverter blade comprises a substantially flat plate having a cut out section into which a portion of an adjacent diverter plate may be received, such that the length of the diverter plates may be longer than the separation between ~~collecting~~sorting bins.

25. (Currently Amended) The apparatus of claim 24 wherein the diverter blade is connected to the ~~collection~~sorting bin at a pivot, the cut out section being disposed at the edge of the flat plate of the diverter blade closest to the pivot and receiving the leading edge of the converter blade of the ~~collection~~sorting bin behind it in the row.

26. (Currently Amended) The apparatus of claim 25 wherein the leading edge of the diverter blade is provided with a protruding section of narrower width than the flat plate, the protruding section angling down near its tip to form a flange which interlocks with the cut out section of the diverter blade forward of it in the row of ~~collection~~sorting bins when the diverter blade is in the closed position.

27. (Currently Amended) The apparatus of claim 24 wherein the diverter blades corresponding to each ~~collection~~sorting bin are mounted on a rotatable axle such that rotation of the axle causes the diverter blade to rotate, the axle being controlled by the control means to rotate and cause the diverter to direct an item of mail from the flow of items of mail into a ~~collection~~sorting bin; and

wherein the means for supporting items of mail flowing across the top of the diverter blades is a plurality of rollers mounted on the axles such that they may rotate freely and independently of the axle.

28. (Currently Amended) ~~An apparatus for transporting~~

mail comprising The apparatus according to Claim 42 wherein the means for supporting items of mail comprises:

a number of surface rollers forming a surface across which the mail is transported;

a conveyor belt positioned above the surface rollers such that mail held between the conveyor and the rollers is transported along the surface formed by the rollers; wherein the surface rollers are arranged to form a convex surface whereby tension is created in the conveyor belt to ensure that mail is kept substantially in contact with the convex surface.

29.-40. (Cancelled).

41. (New) The apparatus of Claim 1, wherein said means for receiving items to be sorted comprises first input means and second input means, and wherein said guide means comprises first and second guide means, said first guide means being arranged to carry input items from said first input means to said second guide means, and said second guide means being arranged to carry input items from said first guide means to said plurality of sorting bins; and

wherein said second input means is arranged to receive items that are larger in size than those received by the first input means, said second input means being coupled directly to the second guide means such that items that are larger in size follow a shorter path to the sorting bins than the items received by the first input means.

42. (New) The apparatus of claim 1, wherein each said sorting bin in said plurality of sorting bins has an opening which may receive an item of mail, and said sorting bins are arranged in one or more rows, said apparatus comprising:



a diverter blade connected to each said sorting bin, having a closed position in which it covers the opening to the sorting bin to prevent an item of mail from entering;

means for supporting items of mail flowing across the top of the diverter blades of each sorting bin in a row; and

a control unit for controlling a diverter blade to direct an item of mail from the items of mail flowing across the top of the diverter blades into a pre-designated sorting bin;

wherein each said sorting bin is provided with a gently curved guide plate which slopes from being substantially horizontal at the opening of the sorting bin to being near vertical at the base of the sorting bin.

43. (New) The apparatus of claim 1, wherein said means for receiving items comprises first and second means for inputting items, and the plurality of sorting bins comprises a first and second array of sorting bins; and

wherein the control unit instructs the guide means to direct items such that items received at either of the first or second input means may be directed to a sort bin in either of the first or second array of sorting bins.